

Systems Engineering (SE) Planning Matrix			
Training			
Level 1 - Participate Team Practitioners/Technical Engineers	Level 2 – Apply Subsystem Leads	Level 3 – Manage Project Mgmt/Project SE's	Level 4 – Strategize/Guide Program Mgmt/Project Systems or Chief Engineer
APPEL Core Courses			
Foundations of Aerospace at NASA	Project Mgmt and SE	Advanced Project Mgmt & Advanced SE	Executive*
Systems Engineering Courses			
-Fundamentals of SE -Lifecycle, Processes, & SE -Requirements Development & Mgmt.	-Concept Exploration & Systems Architecture -Decision Analysis -Developing& Implementing SEMP -Space Systems V&V -Transition, Product Delivery, & Mission Ops	- Systems Thinking (SELDP)	
Design & Manufacturing Courses			
	-Innovative Design for Engineering Applications -Seven Axioms of Good Engineering		
Communications & Leadership Courses			
-Communicating Technical Issues -Negotiations	-Team Leadership	-Leading Complex Projects	- Agency Leadership Courses
		- Executive Presence (SELDP) - Learning & Using Leadership Models & Theories (SELDP)	
Discipline-Focused Track Courses			
	-Explorations Systems & Space Ops -Mars Mission System Design -Science Mission Systems Design & Ops -Space Launch Transportation Systems		-Principal Investigator Forum
DEVELOPMENT			
DEVELOPMENTAL WORK ASSIGNMENTS			
- DETERMINED BY CENTER - Focus on building technical skills. Assignments become increasingly complex and technically difficult.		- DETERMINED BY CENTER & AGENCY (SELDP) - Focus on developing SE leadership skills and abilities & gain a greater understanding of Agency-wide SE.	
LEADERSHIP ASSESSMENTS & COACHING			
- Assessments identify strengths & areas of needed development.		- Assessments Target Self-Awareness & Development of Leadership Behaviors identified in NASA's SE Behavior Study.* (SELDP) - Coaching: Targets development of SE Leadership Behaviors.* (SELDP)	
KNOWLEDGE SHARING ACTIVITIES			
-Obtain a mentor -Attend a technical conference -Demonstrate working knowledge of Agency policy documents -Join national & international affiliations or technical bodies (i.e. INCOSE, PMI)	-Write & present a technical paper -Attend the Master's Forum, PM Challenge, or other non-NASA conferences	-Write a technical paper & present at the Master's Forum, PM Challenge or external conference -Study case studies	-Become a mentor -Conduct storytelling sessions -Instruct or become a guest speaker at APPEL courses -Write ASK magazine article.
		- Benchmark NASA Centers and Other World-Class Federal & Industry SE Organizations. (SELDP) - Shadow top Agency SE's (SELDP)	

*NASA conducted a six-month study of top SE across the Agency to identify the leadership behaviors that made them successful. This study identified the following behaviors for success which are assessed and coached as part of SELDP.

- Leadership Skills: The ability to influence, work with a team, trust others, communicate vision & the technical steps needed to reach implementation, & mentors & coaches less experienced SE's.
- Attitudes & Attributes: Has intellectual self-confidence, intellectual curiosity, the ability to manage change, remains objective, & maintains healthy skepticism.
- Communication: Advances ideas & fosters two-way discussions, communicates through storytelling & analogies, & listens & translates information.
- Problem Solving & Critical Thinking: Manages risk & thinks critically, & penetrates a topic in a methodological manner.
- Technical Acumen: Successfully expresses a technical grasp of SE at all levels, is a generalist in nature, with proven technical depth in one or two disciplines, & has proven knowledge of SE practices.